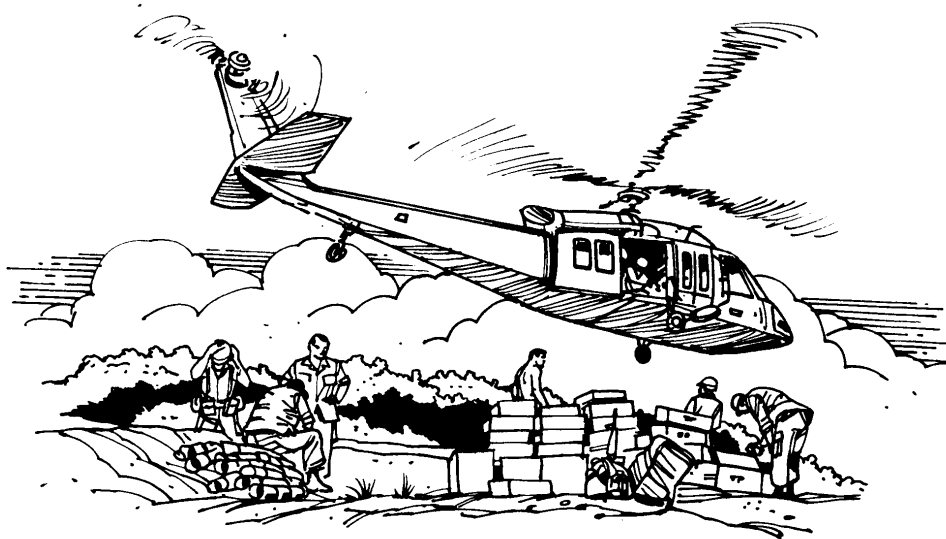


## Chapter 5

# Logistics and Combat Service Support



Mountainous terrain poses great challenges to combat service support (CSS) forces and complicates sustaining operations. Existing roads and trails are normally few and primitive, and cross-country movement is particularly demanding. Highways usually run along features that have steep slopes on either side, making them vulnerable to disruption and attack. Rivers become major obstacles because of rapid currents, broken banks, rocky bottoms, and the lack of bridges. Landslides and avalanches, natural as well as man-made, may also pose serious obstacles to CSS operations. Mountainous areas have wide variations in climate and are subject to frequent and sudden changes of weather that may preclude reliance on continuous aviation support. Together, these conditions compound the obstacle-producing effects of mountainous terrain and create major challenges for the CSS planner. Therefore, the forward distribution of supplies may depend upon the knowledge, skill, and proficiency of CSS personnel in both basic mountaineering and aerial resupply operations.

### CONTENTS

<b>Section I – Planning Considerations .....</b>	<b>5-3</b>
<b>Section II – Supply .....</b>	<b>5-5</b>
<b>Supply Routes .....</b>	<b>5-6</b>
<b>Classes of Supply .....</b>	<b>5-7</b>
<b>Section III: Transportation and</b>	
<b>Maintenance .....</b>	<b>5-9</b>
<b>Section IV – Personnel Support .....</b>	<b>5-10</b>
<b>Section V – Combat Health Support .....</b>	<b>5-11</b>
<b>Planning .....</b>	<b>5-11</b>
<b>Evacuation .....</b>	<b>5-12</b>
<b>Mountain Evacuation Teams .....</b>	<b>5-12</b>
<b>Treatment .....</b>	<b>5-13</b>

## HISTORICAL PERSPECTIVE

### The Importance of Lines of Communications: The Satukandav Pass (Soviet-Afghan War, November-December 1987)

One of the characteristics of the Soviet-Afghan War (December 1979 - February 1989) was the attempt by both sides to control the other's lines of communications (LOCs). In an effort to deprive the guerrillas of their source of sustenance, the Soviets used various methods to drive the rural population into exile or into cities. For their part, the Mujahideen regularly interdicted supply routes through the establishment of blocking positions and vehicular ambushes. In some regions, they were able to effectively interdict supply routes for weeks, months, and even years at a time. The Soviet main supply route was a double-lane highway network winding through the rugged and inhospitable Hindu Kush Mountains. The continued Soviet presence in Afghanistan depended, in large part, on their ability to keep the roads open. Therefore, much of heavy Soviet combat was a fight for control of this road network, with this control often changing hands during the course of the war.

In the fall of 1987, the Mujahideen had established a series of blocking positions that severely limited the supply of weapons, ammunition, and food to Soviet forces in the Khost district. In response, the Soviets planned and

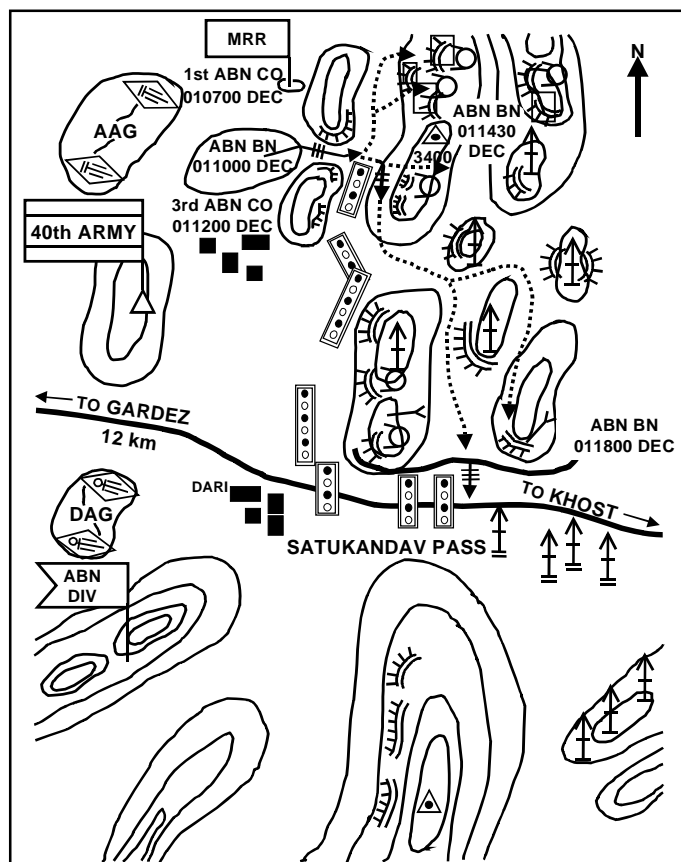


Figure 5-1. Satukandav Pass

conducted Operation Magistral, “main highway,” to open the LOCs (see Figure 5-1). The guerrilla forces had established strong positions in the Satukandav Pass, virtually the only way through the mountains between Gardez and Khost. For the operation, the Soviets massed a motorized rifle division, airborne division, separate motorized rifle regiment (MRR), separate airborne regiment, various 40<sup>th</sup> Army regiments, special forces, and other subordinate units, and regiments from the Afghan Armed Forces. On 28 November, in order to determine the location of Mujahideen positions, particularly air defense systems, the Soviets conducted a ruse in the form of an airborne assault using dummy paratroopers. When the Mujahideen fired at the dummies, Soviet artillery reconnaissance was able to pinpoint enemy strong points and firing positions. The Soviets hit these positions with air strikes and a four-hour artillery barrage. The next day, however, an MRR failed to make its way up the foothills to seize the dominant terrain along the crest, and suffered heavy casualties. The 40<sup>th</sup> Army Commander, General Gromov, nevertheless, decided to continue to press his advance using the 1<sup>st</sup> Airborne Battalion and a battalion of Afghan commandos. On 1 December, two airborne companies captured key terrain and used this to support the decisive operation against the dominant peak to the south. This flanking attack took the Mujahideen by surprise and they began to withdraw. While calling in artillery fire on the retreating guerrilla forces, primarily on the reverse slope and along the probable avenue of approach for the commitment of enemy reserves, the Soviet battalion commander used this hard-won, key terrain to support a simultaneous, two-prong attack to the south toward the Satukandav Pass. Now it was the Soviets who were in a position to cut off supplies, especially fresh drinking water, from the Mujahideen. The latter were forced to withdraw, and the two battalions captured the pass. However, while the operation itself was a success, Soviet and Afghan Army forces could keep the road open for only 12 days, after which the Mujahideen once again cut off the supply route to Khost.

Both sides recognized the vital importance of LOCs, and this shift of LOC control was a constant feature throughout the entire duration of the Soviet-Afghan War. The Mujahideen’s ability to interdict the LOCs prevented the Soviets from maintaining a larger occupation force there, a key factor in the eventual Soviet defeat.

Compiled from *The Other Side of the Mountain* and *The Bear Went Over the Mountain*.

## SECTION I – PLANNING CONSIDERATIONS

5-1. Mountainous areas of operations dictate that commanders foresee needs before demands are placed upon CSS personnel. The main logistical differences between mountain operations and operations in other terrain are a result of the problems of transporting and securing material along difficult and extended lines of support. Logistics support must emphasize a continuous flow of supplies to specific locations, rather than the build-up of stocks at supply points along the main supply routes. Supply point operations alone are insufficient; the proposed support structure must plan for redundancy in the ability to distribute supplies directly to units operating from predetermined supply routes. If possible, commanders should plan to

use multiple supply routes designed to support maneuver elements moving on separate axis.

5-2. Commanders must be concerned not only with the sustainment of current operations but also with the support of future operations. A detailed logistics preparation of the theater (LPT) to identify the potential lines of communication plays a major part in determining the conduct of CSS operations. A detailed reconnaissance should be conducted to determine:

- The type and maximum number of vehicles that the road network can support in the area. New roads may need to be constructed or improvements made to existing ones to support protracted operations in isolated areas.
- Classification of bridges.
- Suitable sites for drop zones (DZs), loading zones (LZs), and short, tactical airstrips.
- Availability of water sources.
- Availability of local resources, facilities, and service and support activities.

5-3. Because of terrain constraints, it may be necessary to disperse support units over a wider area and ensure that supplies are positioned closer to supported units. Dispersion reduces vulnerability of CSS assets, which also creates problems with command, control, and security. CSS units are often high-priority targets, and must ensure adequate protection against ground and air attacks.

5-4. In mountainous terrain, battalion CSS elements are normally echeloned into combat and field trains to increase responsiveness, provide adequate space, and decrease the logistics footprint. Combat trains are routinely located in ravines or valleys on the rear slope of the terrain occupied by the unit. This permits the personnel officer (S1) and logistics officer (S4) to operate in close proximity to the tactical operations center (TOC), and allows them to keep abreast of unit requirements.

5-5. In the mountains, unresolved logistical problems can quickly lead to mission failure. Ground operations may increase fuel consumption rates of individual vehicles by 30 to 40 percent, requiring more frequent resupply operations. The operation of equipment in mountainous terrain has proven that maintenance failures far exceed losses due to combat, and most breakdowns can be attributed to operator training. Air operations are characterized by a significant increase in lift requirements; however, increased elevations decrease aircraft lift capabilities.

5-6. Commanders must carefully consider combat loads in the mountains, based upon a thorough mission analysis. Excess equipment and supplies reduce the efficiency of the individual soldier and seriously impede

operations. In steep terrain above 1,500 meters (5,000 feet), soldier loads may need to be reduced by nearly 50 percent. Commanders must develop priorities, accept risk, and require the combat force to carry only the bare essentials needed for its own support. Nonessential equipment should be identified, collected, and stored until it is needed. In situations where there are conflicts between the weight of ammunition and weapons, experience has shown that it is better to carry more ammunition and fewer weapons. In the mountains, commanders should strive to achieve the imperatives indicated in Figure 5-2.

- **Limit supplies to essentials.**
- **Lighten the individual soldier's combat load.**
- **Improvise methods and supply sources, to include utilizing captured enemy supplies and equipment.**
- **Use aviation assets to increase responsiveness.**
- **Anticipate maintenance requirements.**
- **Develop plans that place realistic demands on the CSS system.**

**Figure 5-2. Mountain Supply Imperatives**

## **SECTION II – SUPPLY**

5-7. Units operating in mountainous terrain transport supplies by a combination of wheeled vehicles, oversnow vehicles, indigenous pack animals and personnel (see FM 3-05.27), assisted by Army and Air Force lift assets. These combinations depend on equipment availability, location of combat units, type of terrain, and weather. However, any combination of resupply usually includes combat soldiers man-packing supplies to their positions.

5-8. Since combat operations in the mountains are decentralized, CSS operations are correspondingly decentralized. This decentralization serves to create heavier man-loads, while rough, steep terrain decreases the amount soldiers are able to carry. Although most soldiers are eventually able to acclimate themselves to higher elevations, their pace and subsequently the overall pace of the entire operation slows down as elevation increases.

5-9. Mountain warfare is highly dependent on accurate logistical planning if supply operations are to function smoothly. To win in any area of operations (AO), commanders normally seek to move and strike as rapidly as possible. Rapidly changing tactical situations may cause long supply lines, resulting in delay or complete disruption of supply operations. To mitigate these risks, situational understanding, rapid decisions, and continuous coordination between tactical and logistical planners are essential. Stockpiling and caching supplies may also help to decrease the risks to resupply.

5-10. The total tonnage of supplies required by the force may also decrease. For example, while individual vehicle petroleum, oils, and lubricants (POL) consumption may increase, overall consumption may decrease because of lower vehicle movement. The quantity of supplies needed by the individual soldier normally increases. Soldiers consume more food because of increased

energy expenditure, and need many additional items of equipment, such as extra clothing, sleeping bags, climbing equipment, tents, and stoves, all of which must be stored and transported.

## **SUPPLY ROUTES**

5-11. Main supply routes are generally limited to the roads located along major valleys and, through necessity, to the smaller, more restrictive trails that follow or parallel the ridgelines. The limited number of routes increases the volume of traffic and places heavy demands on engineer units to maintain them. In most cases, engineer units require assistance in clearing and developing, as well as in securing, these routes. Travel times for ground transportation assets are significantly increased due the generally poor quality of mountain roads and trails, frequent switchbacks, and steep grades that require lower vehicle speeds. Traffic control assumes increased importance due to the limited number of routes in the mountains, and may require an increased number of military police dedicated to the task of battlefield circulation control. In particular—

- Existing roads should be rapidly analyzed for bottlenecks, deployment areas, passing places, and turnarounds for various vehicles.
- Routes should be classified as one- or two-way, and schedules developed for the use of one-way routes.
- Signs should be placed for both day and night moves on difficult and dangerous routes.
- Whenever possible, separate routes should be designated for vehicular and dismounted movement. Additionally, separate routes should be designated for wheeled and tracked vehicles, particularly if the latter are likely to damage road surfaces.

5-12. The enemy will emphasize destroying logistical units and interdicting supply activities. Enemy units will infiltrate and seize key terrain that dominates supply routes in an effort to disrupt and isolate units from their logistics support. Using mountain trails and roads without securing the high ground on both sides invites ambush. Patrols must be continually conducted at irregular intervals to verify the status of roads and prevent enemy infiltration. Patrols must be continuously alert for ambush and they must be skilled at locating and identifying mines. However, a combination of patrols and aerial reconnaissance is the best means of providing route security. Observation posts on dominant terrain along supply routes are also essential for early warning of enemy infiltration into rear areas.

5-13. Most often, units have to use the narrow ridge trails as alternate supply routes, in some instances as main supply routes, to reduce the volume of traffic on the main supply routes located along valley floors. This involves movements in much more restrictive terrain and exposure to excellent observation and fire by the enemy. Supply columns moving along separate

routes face the same problems as combat units; they face the difficulties of being able to provide mutual support due to compartmented terrain, should one column come under attack. Movement of supplies at night may reduce vulnerability to enemy attack, but night marches present other hazards due to the difficult terrain, and require daylight reconnaissance, careful route preparations, and using guides.

## **CLASSES OF SUPPLY**

### **CLASS I: RATIONS AND WATER**

5-14. The strenuous activities required during mountain operations increase caloric requirement to 4,500 calories or more per day. Improper or too little food means soldiers will lack the stamina to accomplish the mission. Although combat rations are normally used, unitized group rations (UGRs) should be provided once a day if the situation permits. Individual packages of oatmeal and dehydrated soup mixes should be issued if the UGR cycle cannot be maintained.

5-15. In abrupt ascents to high altitude, soldiers do not have time to acclimate themselves, so their entire circulatory system labors to supply oxygen to the body. In this situation, standard rations are hard to digest and special rations, such as the ration, cold weather (RCW), that allow soldiers to eat light and often should be procured. The totally self-contained operational ration consists of one full day's feeding in a flexible, white-camouflaged meal bag. It contains cooked, freeze-dried, or other low moisture entrees, as well as a variety of items such as oatmeal, a nut-raisin mix, and fruit-cookie bars. The RCW provides sufficient calories (approximately 4,500 kilocalories) to meet the increased energy expenditure during heavy exertion, while limiting sodium and protein content to reduce the risk of dehydration. Because of rapidly changing weather conditions and the difficulty of resupply, each soldier may need to carry two to three days' supply of rations. However, this increases the soldier's load by approximately 10 to 15 pounds.

5-16. Proper water production, resupply, and consumption are essential and a constant challenge during mountain operations. In low mountains, planners should count on at least four quarts of water per soldier per day when static and up to eight quarts per day when active. In high mountains, planner should increase those requirements by about two quarts per soldier. In the mountain environment, medical care often requires an increased water supply and must be considered as part of the original planning and contingency factors.

5-17. Units should always be prepared to use natural water sources to help reduce the logistics burden. However, far above the timberline, water is extremely difficult to find. Special measures must be taken to protect it from freezing in cold weather, such as placing canteens in the chest pockets of the extended cold weather clothing system (ECWCS) coat, hanging a two-quart canteen on a strap under the coat, or utilizing a camel-back type, commercially available, canteen under overgarments. Purification and chemical sterilization are always necessary no matter how clean mountain

water may appear. Micro-organisms present in mountain water may cause serious illness and rapidly degrade the strength of a unit. If above ground water sources cannot be located or are not reasonably available, drilling for underground sources may become a critical engineer task. Once engineer units access the water, quartermaster units have responsibility for completing the water points and purifying the water.

## **CLASS II: GENERAL SUPPLIES**

5-18. General supplies include expendable administrative items, individual clothing and equipment, tentage, and other items authorized by common tables of allowance. All units must deploy with enough Class II items to last until routine resupply can be established. Special items, such as extended cold weather clothing, gloves, climbing equipment, extended cold-weather sleep systems, batteries, and one-burner cook stoves, will be in great demand. Due to the rugged nature of the terrain, mountain operations also increase requirements for replacement items of individual clothing and equipment. Combat boots, for example, may be expected to last approximately two weeks in harsh rocky terrain.

## **CLASS III: FUEL AND PACKAGED PETROLEUM PRODUCTS**

5-19. Individual vehicles need much more fuel in mountainous terrain. However, limited road nets and steep slopes reduce the volume of vehicle traffic and overall fuel consumption. The heavy reliance on aviation assets for resupply and movement increases aviation fuel requirements. A commander must routinely plan for the emplacement of a forward arming and refueling point (FARP) within their AO to support intensive aviation operations. Battalions should establish a fuel point in the field trains using collapsible fuel drums. These drums should be operational as soon as the field trains are established and prepared to receive fuel from the forward supply company as soon as it arrives. When terrain makes refueling operations vulnerable to attack, units should conduct forward refueling using supply point distribution, and dispense fuel to unit vehicles using the tailgate technique. The lack of suitable terrain normally increases the percentage of forward refueling done by this method.

5-20. At 600 meters (2,000 feet), multi-fuel cook stoves operate at about 75 percent efficiency. When soldiers refuel cook stoves, they must avoid using automotive fuel. Fuel points must supply units with refined or white gasoline that is specifically produced for pressurized stoves. Relatively large quantities of this fuel will be used when procuring water and preparing food. Adequate quantities of five-gallon cans, nozzles, and one-quart fuel bottles must be on-hand before deployment.

## **CLASS IV: CONSTRUCTION, BARRIER, AND FORTIFICATION MATERIALS**

5-21. Soldiers should make maximum use of local materials to reduce Class IV requirements and demands on the transportation system. Gabion-type material is especially versatile during mountain operations. Gabions are widely used in the mountains for constructing obstacles, fighting positions,



anchors, mountain installations, traverse platforms, and helicopter LZs; for creating landslides or rockfalls; and for repairing roads. Units should stock adequate quantities of easily transportable sizes of reinforcing mesh and other suitable materials for constructing gabions.

#### **CLASS V: AMMUNITION**

5-22. Because of terrain, ammunition resupply is difficult, making strict fire control and discipline an absolute necessity. Ammunition transfer points need to be as far forward as possible without revealing friendly unit locations or placing ammunition stocks at risk of capture or destruction. Direct delivery to the user may be required using aerial resupply. Innovation and flexibility are critical. In the mountains, the traditional mixes of tank ammunition may be less effective. Depending upon the specific threat, more rounds may be needed to attack light vehicles and fortified positions and less may be needed to engage tanks. Ammunition consumption for direct fire weapons may be low, however, consumption of indirect fire munitions, such as grenades, mortars, and artillery, may be high because of the dead space common to mountainous terrain. Planners must ensure that increased consumption of indirect fire munitions is included in computing required supply rates.

#### **CLASS VII AND IX: MAJOR END ITEMS AND REPAIR PARTS**

5-23. Rugged terrain and climate extremes cause an increase in repair parts consumption. However, overall vehicle utilization decreases in many situations. Because it is difficult to transport large end items to forward units, the commander must place additional emphasis on preventive maintenance and repair.

#### **CLASS VIII: MEDICAL SUPPLIES**

5-24. The medical platoon obtains medical supplies for the battalion from the supporting forward support medical company (FSMC) or similar task organized medical element. Medical supply organizations may distribute supply by various means: supply point distribution, unit distribution, or a combination of both. Mountainous terrain necessitates using supply point distribution to a great extent. Medical supply activities must maximize use of empty evacuation assets moving forward to execute unit distribution of supplies as often as possible. The terrain will severely constrain ground movement operations. Pre-planned unit distribution via air assets is a must for emergent situations, such as mass casualty scenarios. Medical supplies must have a high priority for movement. Distribution of Class VIII via air lines of communications (LOCs) should occur as often as tactically feasible.

### **SECTION III – TRANSPORTATION AND MAINTENANCE**

5-25. Transportation assets for mountain operations are often limited, and their use requires sound planning. Although vehicles are used to move supplies as far forward as possible, they may not be able to reach deployed units. Using smaller cargo vehicles with improved cross-country mobility and

dedicated aircraft is paramount to sustaining units in the mountains. Locally obtained animals, indigenous personnel, or combat soldiers must often move supplies from roads and trails to unit positions. The poor quality of road networks requires increased engineer effort. The rugged mountain terrain aids in infiltration increasing security requirements along the route.

5-26. Air resupply should always be considered to reduce the transportation burden on ground assets. Therefore, support personnel should be well-trained in aerial resupply and sling-load operations. Aerial resupply, either by parachute drop, free drop, or cargo helicopter, may be available for a variety of tactical situations. However, unpredictable weather and air currents, cloud cover, and lack of suitable landing zones make aerial delivery unreliable, and higher elevations decrease overall aircraft lift capabilities. The integrated use of available helicopter transport should be used for forward transport of mail, replacements, returnees, and personnel service support providers, such as chaplains and finance support teams.

5-27. Fixing equipment as far forward as possible takes on added importance during mountain operations. In low mountains, equipment recovery and maintenance teams are critical in keeping limited routes clear and returning damaged vehicles to the battle in the shortest possible time. In high mountains, these teams are generally less critical to units operating there because terrain often limits vehicle use. Helicopter repair teams are critical in all mountainous environments due to helicopters flying at or near the maximum limits of their operational capabilities to meet increased needs for helicopter support. In all cases, maintenance turn-around time increases to compensate for fatigue and the other effects of the environment on maintenance personnel. Figure 5-3 lists some of the critical repair parts that often fail or require frequent replacement during mountain operations.

- Tires
- Tracks
- NVG Batteries
- Communications Equipment
- Cooling Systems

**Figure 5-3. Key Repair Parts**

5-28. Drivers well trained in proper maintenance and driving techniques eliminate a great deal of unnecessary maintenance and reduce maintenance requirements and vulnerable bottlenecks. All soldiers must devote increased attention to applicable FMs and TMs for their weapons and equipment and must conduct preventative maintenance, to include the availability and use of suitable cleaning solvents and lubricants, appropriate for the weather and terrain conditions.

## **SECTION IV – PERSONNEL SUPPORT**

5-29. Personnel support in the mountains is not unlike that provided to other types of operations except for the limitations on soldiers and equipment posed by the environment. Key personnel support missions are to provide manning and personnel service support to unit commanders, soldiers, and Army civilians.

5-30. Personnel units normally depend on large quantities of automation equipment to successfully accomplish their mission. Adverse weather and rugged terrain may decrease their reliability and commanders should take extra precautions to protect this equipment. Additionally, the difficulty in establishing and maintaining communications may require an increased reliance on manual strength reporting until communications and automated systems are firmly established.

5-31. Postal services establish the link between soldiers and their family and friends and assist in defeating the isolation caused by the compartmented terrain and the resulting dispersion of units. However, the limited lines of communications in mountainous terrain may adversely affect mail distribution. Inefficient distribution of mail can quickly undermine morale, regardless of the AO. The timely delivery of mail is especially important in countering the shock of entering a new environment. Commanders should consider devoting a high priority to the distribution of mail on arrival in the theater of operations. FM 1-0 describes in detail the critical personnel systems and functions essential to providing manning and personnel service support.

## **SECTION V – COMBAT HEALTH SUPPORT**

### **PLANNING**

5-32. Combat health support (CHS) in the mountains is characterized by–

- Difficulty in accessing casualties in rugged terrain.
- Increased need for technical mountaineering skills for casualty evacuation.
- Longer periods of time needed for casualties to be stabilized.

5-33. When planning CHS, commanders must consider the tactical situation, the nature of the terrain, and speed of movement along the chain of evacuation. Aid stations should be centrally located in relation to supported units. The exact location should be based on the ability to provide shelter from the elements, cover and concealment from the enemy, ease of evacuation, and expected casualty rates.

5-34. The decentralization in the mountain area of operations also forces the decentralization of CHS. Commanders may need to establish casualty collection points, operated by aidmen from the evacuation section, to support isolated elements. These points are designated at intermediate points along the routes of evacuation where casualties may be gathered. Additionally, multiple ambulance exchange points may be required to transfer casualties from one type of transportation to another.

## EVACUATION

5-35. Aeromedical evacuation remains the preferred form of casualty evacuation in mountain operations. Aircraft provide the best capability of evacuating casualties from isolated locations and transporting them to treatment centers. However, in many instances, even lightly wounded personnel may not be able to move unassisted over rough terrain and LZs may not be available.

5-36. Medical evacuation teams must complete reconnaissance and install necessary evacuation systems along each evacuation route before the onset of casualties. Litter relay stations may be required at predetermined points to conserve the stamina of litter bearers and accelerate evacuation. The evacuation plan must include measures to care for wounded soldiers at points along the route of evacuation where delays are possible. The plan must also depict all evacuation routes and provide for proper disposition of medical personnel along the lines of evacuation (see FM 4-02.2). Evacuating the wounded from mountain combat zones normally requires a larger number of medical personnel and litter bearers than on flat terrain. The number and type of evacuation systems depend on mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC) and the factors listed in Figure 5-4.

- **The patient's condition**
- **Anticipated casualty rate**
- **Importance of rapid movement**
- **Number of available evacuation teams**
- **Number of evacuation routes available**
- **Transportation assets and equipment available**
- **Availability of suitable and secure LZs**

**Figure 5-4. Factors Affecting Evacuation Systems**

## MOUNTAIN EVACUATION TEAMS

5-37. As the battle to control the heights evolves, combatants attempt to exploit technical aspects of terrain. Consequently, commanders must anticipate the need for evacuation teams, normally Level 2 mountaineers, that have the capability to reach, stabilize, and evacuate casualties in rugged terrain. Ground evacuations are generally classified as steep slope (non-technical) or high angle (technical). The mission of trained mountain evacuation teams is to move casualties over cliffs, obstacles, and other technical terrain that would significantly impede the mobility of standard litter bearers. Using evacuation systems to negotiate obstacles shortens routes and increases the speed of evacuation.

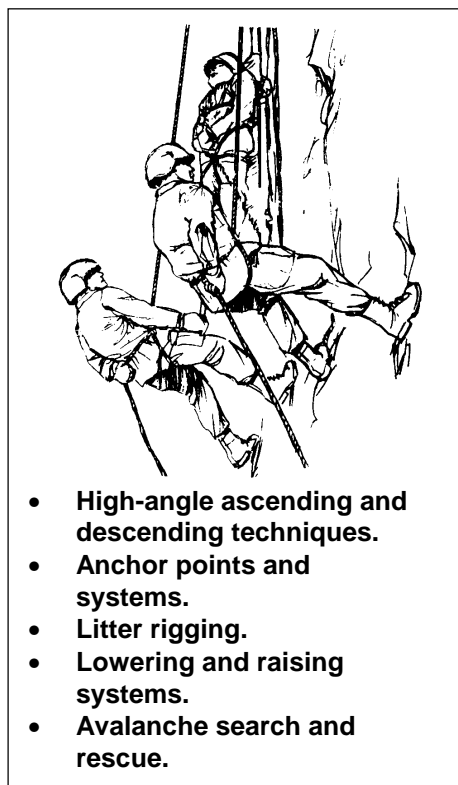
5-38. Because units normally deploy over a wide area and the availability of qualified technical evacuation teams is likely to be limited, all soldiers should be trained to conduct less technical, steep-slope evacuations. Two of the most qualified evacuation teams should be identified in each battalion-sized unit prior to planned operations. They should be designated as the battalion's technical evacuation assets and should undergo more advanced

mountaineering training and rigorous evacuation training. These soldiers can also develop and teach a program of instruction that will increase the proficiency of the company evacuation teams.

5-39. Mountain evacuation teams must install the necessary evacuation systems before casualties occur. They must man the systems, move casualties over the obstacle until the evacuation route is no longer required, disassemble the system, and redeploy as necessary. Depending on the specific terrain, evacuation teams may demand extensive additional training in some of the areas listed in Figure 5-5.

## TREATMENT

5-40. Treatment of the wounded in forward areas by medical personnel is extremely difficult in restrictive terrain, since even a single company is often deployed over a wide area. Combat in the mountains demands a greater reliance on self-aid, buddy-aid, and unit combat lifesaver techniques. Emphasis must be placed on lifesaving and life-preserving measures to be performed before medical personnel arrive. Unit combat lifesavers must be identified and trained to perform in the absence of medics. Units operating in mountainous areas should strive to meet or exceed Army standards for the number of combat lifesavers required for their specific unit. See FM 4-02.92 for more information on combat lifesavers.



**Figure 5-5. Mountain Evacuation Team Tasks**

5-41. Soldiers in mountain regions are exposed to many and varied types of illnesses and injuries. Appendix A describes the cause, prevention, symptoms, and treatment of common mountain illnesses and injuries.

